

Hard-Copy Field Information Recording Forms

Appendix H

Revision 03, March 2003

Master Data Fields List

<i>Survey Information</i>	<ul style="list-style-type: none"> • Survey ID • Chief Survey Scientist • Survey Name • Vessel • Start Date 	<ul style="list-style-type: none"> • Start Time • Stop Date • Stop Time • Survey Description
<i>Station Information</i>	<ul style="list-style-type: none"> • Visit ID • Station ID • Pilot ID • Arrival Date • Arrival Time • Departure Date • Departure Time • Latitude (D,M) • Longitude (D,M) • Station Depth 	<ul style="list-style-type: none"> • Water Temperature(°C) • Air Temperature (°C) • Wind Direction • Wind Speed • Wave Height • Barometric Pressure • Station ID • Visibility • Weather • Remarks
<i>Rosette Sampling Data</i>	<ul style="list-style-type: none"> • Survey ID • Visit ID • Sample Date • Sample Time • EBT Operator • Assistant Sampler • Method ID • Instrument ID • Station ID 	<ul style="list-style-type: none"> • Total Depth • Surface Water Temperature • Sample ID • Depth Code • QCID Code • Depth • Temperature • Remarks
<i>Ponar Grab Sampling Data</i>	<ul style="list-style-type: none"> • Survey ID • Visit ID • Station ID • Sample Date • Sample Time • Personnel 	<ul style="list-style-type: none"> • Water Depth • Sample ID • Sample • QCID Code • Number of Bottles • Remarks
<i>Zooplankton Net Flowmeter Calibration</i>	<ul style="list-style-type: none"> • Survey ID • Station ID • Date • Time • Flowmeter ID • Mesh Size 	<ul style="list-style-type: none"> • Winch Operator • Meter Reader • Depth • Revolutions • Line Angle • Comments
<i>Zooplankton Sampling & Secchi Disk Data</i>	<ul style="list-style-type: none"> • Survey ID • Visit ID • Station ID • Sample Date • Personnel • Sample ID • Sample Time • Depth Code • QCID Code • Mesh Size 	<ul style="list-style-type: none"> • Sample Depth • Flowmeter Reading • Flowmeter ID • Net Angle • Remarks • Reader • Secchi Depth • Sample Time • Reader • Remarks

Master Data Fields List

<i>Chlorophyll a Preparation</i>	<ul style="list-style-type: none"> • Survey ID • Visit ID • Station ID • Preparation Batch ID • Sample ID • Depth Code 	<ul style="list-style-type: none"> • Check Mark • Remarks • Sample Volume • Preparation Date • Preparation Finish Time • Personnel
<i>Phytoplankton Preservation</i>	<ul style="list-style-type: none"> • Survey ID • Visit ID • Station ID • Preparation Batch ID • Sample ID • Depth Code 	<ul style="list-style-type: none"> • Check Mark • Remarks • Sample Volume • Preparation Date • Preparation Finish Time • Personnel
<i>Nutrients Preparation</i>	<ul style="list-style-type: none"> • Survey ID • Visit ID • Station ID • Preparation Batch ID • Preparation Date • Preparation Finish Time 	<ul style="list-style-type: none"> • Personnel • Sample ID • Depth Code • Check Mark • Remarks
<i>POC, PN, PP Preparation</i>	<ul style="list-style-type: none"> • Survey ID • Visit ID • Station ID • Batch ID • Date • Time • Personnel 	<ul style="list-style-type: none"> • Sample ID • Depth Code • Volume - POC • Volume - PN • Volume - PP • Remarks
<i>TSS Preparation</i>	<ul style="list-style-type: none"> • Survey ID • Visit ID • Station ID • Filtration Batch ID • Filtration Date • Filtration Time 	<ul style="list-style-type: none"> • Personnel • Sample ID • Preparation Batch ID • Filter Number • Volume Sample Filtered • Remarks
<i>Preparation of Quality Assurance Samples</i>	<ul style="list-style-type: none"> • Survey ID • Visit ID • Station ID • Method SOP • Sample ID • QCID Code • Preparation Date 	<ul style="list-style-type: none"> • Preparation Time • Analyst • Analyte Code • Target Value • Target Units • Remarks/Source Materials

Master Data Fields List

Calibration Data of Board Chemistry Instruments Plus Shiftwise Standardization	<ul style="list-style-type: none"> Survey ID Lake pH Meter Buffer 4 Buffer 7 Buffer 10 Turbidity Meter at zero - Before Adjusting Turbidity Meter at 20 - Before Adjusting Turbidity Meter at zero - After Adjusting Turbidity Meter at 20 - After Adjusting Date of Calibration Time of Calibration Analyst Conductivity Standards - 106.1 umho/cm Conductivity Standards - 210.3 umho/cm Conductivity Standards - 313.5 umho/cm Conductivity Standards - 415.8 umho/cm Turbidity Standards - zero Turbidity Standards - 0.4 Turbidity Standards - 2.0 Turbidity Standards - 8.0 Turbidity Standards - 20 Station ID Date/Time Analyst pH Determination Buffer 7 Temperature of Standardization Alkalinity Determination buffer 4 Temperature of Standardization Turbidity 20 NTU Turbidity Empty Compartment
Control Standards Data of Board Chemistry Parameters	<ul style="list-style-type: none"> Survey ID Visit ID Station ID Lake Sample ID Measured Value Remarks Date of Control Check Time of Control Check Analyst
Board Chemistry Data	<ul style="list-style-type: none"> Survey ID Visit ID Station ID Analytical Batch ID Analytical Date Analytical Time Analyst Sample ID Depth Code pH Specific Conductance Total Alkalinity Turbidity Remarks
Dissolved Oxygen Data (Winkler)	<ul style="list-style-type: none"> Survey ID Visit ID Station ID Analytical Batch ID Analytical Date Analytical Time Analyst Sample ID Titrant Used DO BOD Bottle Volume Volume Corrected DO Temperature (°C) Barometric Pressure Corrected Table Value Remarks

Survey ID

Survey Information

Chief Survey Scientist (initials)	Survey Name	Vessel	Start Date (mm/dd/yyyy)	Start Time (Shiptime, military)	Stop Date (mm/dd/yyyy)	Stop Time (Shiptime, military)

Survey Description

Station Information

Visit ID	Station ID	Pilot ID	Arrival Date	Arrival Time		Departure Date	Departure Time	Latitude		Longitude		Station Depth	Water Temp.	Air Temp	Wind Direction	Wind Speed	Wave Height	Barometric Pressure
		(initials)	(mm/dd/yyyy)	(Shiptime, military) hh:mm	(Zone difference)	(mm/dd/yyyy)	(Shiptime, military) hh:mm	(Degrees)	(Min.xxx)	(Degrees)	(Min.xxx)	(meters)	(°C)	(°C)	(deg T)	(naut mile)	(meters)	(in Hg)
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Station Information

[illegible]

Rosette Sampling Data

Survey ID	Visit ID	Sample Date (mm/dd/yyyy)	Sample Time (Shiptime, military)	EBT Operator (Initials)XXX	Asst Sampler (Initials)XXX

Method ID	Instrument ID	Station ID	Total Depth (from Rosette)	Surface Water Temperature (°C)

Sample ID	Depth Code	QCID Code	Depth (meters)	Temperature (°C)	Remarks

The Integrated sample was created from the following samples (also list depths):_____

Notes: Refer to LG200 for depth code abbreviations and definitions.

Ponar Grab Sampling Data

Survey ID	Visit ID	Station ID	Sample Date (mm/dd/yyyy)	Sample Time (Shiptime, military)	Personnel (initials) xxx	Water Depth (meters)

Sample ID	Sample (sediment/benthos)	QCID Code	Number of Bottles	Remarks

Survey ID	Visit ID	Station ID	Sample Date (mm/dd/yyyy)	Sample Time (Shiptime, military)	Personnel (initials) xxx	Water Depth (meters)

Sample ID	Sample (sediment/benthos)	QCID Code	Number of Bottles	Remarks

NOTE: Refer to Attachment A of the WQS QAPP, LG400, or LG401 for more information on integrated samples.

Method (SOP Code): LG 406
03/01/02

Entered into electronic file_____
(initials)

Zooplankton Net Flowmeter Calibration

Survey ID **Station ID** **Date** **Time** (Shiptime,
(mm/dd/yyyy) military)

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Winch

Flowmeter **Mesh Size** **Operator** **Meter Reader**
ID (number) **(um)** **(initials) XXX** **(initials) XXX**

	153 um		
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Winch

Flowmeter **Mesh Size** **Operator** **Meter Reader**
ID (number) **(um)** **(initials) XXX** **(initials) XXX**

	63 um		
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Tow number	Depth	Revolutions	Line Angle
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Tow number	Depth	Revolutions	Line Angle
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Comments:

NOTE: Refer to Attachment A of the WQS QAPP, LG400, or LG401 for more information on integrated samples.

Zooplankton Sampling and Secchi Disk Data

Survey ID	Visit ID	Station ID	Sample Date (mm/dd/yyyy)	Personnel (Initials) XXX

Sample ID	Sample Time (Shiptime, military)	Depth Code	QCID Code	Mesh Size (μ m)	Sample Depth (meters)	Flowmeter Reading	Flowmeter ID (number)	Net Angle	Remarks

Secchi Depth (meters)	Sample Time (Shiptime, military)	Reader (Initials) XXX	Remarks

Notes:

1. Refer to LG200 for depth code abbreviations and definitions.
2. Refer to Attachment A of the WQS QAPP, LG400, or LG401 for more information on integrated samples.
3. Field duplicates are taken for Secchi disk measurements each time a field duplicate is scheduled for collection for the Surface sample of a lake (the sample collected at 1 meter below the surface). Two different analysts should take the duplicate measurements and the acceptance criteria for these duplicates is less than or equal to 0.5 meters.

Chlorophyll a Preparation

Survey ID	Visit ID	Station ID	Preparation Batch ID

Sample IDs	Depth Code	Check Mark	Remarks

Sample volume (mLs)	Preparation Date (mm/dd/yyyy)	Preparation Finish Time (Shiptime, military)	Personnel (initials) XXX
		:	

Survey ID	Visit ID	Station ID	Preparation Batch ID

Sample IDs	Depth Code	Check Mark	Remarks

Sample volume (mLs)	Preparation Date (mm/dd/yyyy)	Preparation Finish Time (Shiptime, military)	Personnel (initials)XXX
		:	

Notes:

1. Refer to LG200 for depth code abbreviations and definitions.
2. Refer to Attachment A of the WQS QAPP, LG400, or LG401 for more information on integrated samples.

PHYTOPLANKTON PRESERVATION

GLNPO's WQS

Survey ID	Visit ID	Station ID	Preparation Batch ID

Sample IDs	Depth Code	Check Mark	Remarks

Sample volume (mLs)	Preparation Date (mm/dd/yyyy)	Preparation Finish Time (Shiptime, military)	Personnel (initials) XXX
		:	

Survey ID	Visit ID	Station ID	Preparation Batch ID

Sample IDs	Depth code	Check mark	Remarks

Sample volume (mLs)	Preparation Date (mm/dd/yyyy)	Preparation Finish Time (Shiptime, military)	Personnel (initials) XXX
		:	

Survey ID	Visit ID	Station ID	Preparation Batch ID

Sample IDs	Depth code	Check mark	Remarks

Sample volume (mLs)	Preparation Date (mm/dd/yyyy)	Preparation Finish Time (Shiptime, military)	Personnel (initials) XXX
		:	

Notes:

1. Refer to LG200 for depth code abbreviations and definitions.
2. Refer to Attachment A of the WQS QAPP, LG400, or LG401 for more information on integrated samples.

Nutrients Preparation

Survey ID	Visit ID	Station ID	Preparation Batch ID	Preparation Date (mm/dd/yyyy)	Preparation Finish Time (Shiptime, military)	Personnel (initials) XXX

Sample IDs	Depth Code	Check Mark	Remarks

Survey ID	Visit ID	Station ID	Preparation Batch ID	Preparation Date (mm/dd/yyyy)	Preparation Finish Time (Shiptime, military)	Personnel (initials) XXX

Sample IDs	Depth Code	Check Mark	Remarks

NOTE: Refer to LG200 for depth code abbreviations and definitions.

POC, PN, PP Preparation

Survey ID	Visit ID	Station ID	Batch ID	Date (mm/dd/yyyy)	Time (Shiptime,military)	Personnel (Initials)

Sample ID	Depth Code	Volume (mL)			Remarks
		POC	PN	PP	

Survey ID	Visit ID	Station ID	BatchID	Date (mm/dd/yyyy)	Time (Shiptime,military)	Personnel (Initials)

Sample ID	Depth Code	Volume (mL)			Remarks
		POC	PN	PP	

Survey ID	Visit ID	Station ID	BatchID	Date (mm/dd/yyyy)	Time (Shiptime,military)	Personnel (Initials)

Sample ID	Depth Code	Volume (mL)			Remarks
		POC	PN	PP	

NOTE: Refer to LG200 for depth code abbreviations and definitions.

TSS Preparation

Survey ID	Visit ID	Station ID	Filtration Batch ID	Filtration Date (mm/dd/yyyy)	Filtration Time (Shiptime, military)	Personnel (initials)XXX
Sample ID	Preparation Batch ID	Filter Number	Volume Sample Filtered (L)	Remarks		

Survey ID	Visit ID	Station ID	Filtration Batch ID	Filtration Date (mm/dd/yyyy)	Filtration Time (Shiptime, military)	Personnel (initials) XXX
Sample ID	Preparation Batch ID	Filter Number	Volume Sample Filtered (L)	Remarks		

Survey ID	Visit ID	Station ID	Filtration Batch ID	Filtration Date (mm/dd/yyyy)	Filtration Time (Shiptime, military)	Personnel (initials) XXX
Sample ID	Preparation Batch ID	Filter Number	Volume Sample Filtered (L)	Remarks		

Preparation of Quality Assurance Samples

GLNPO WQS

Survey ID	Visit ID	Station ID

Method SOP	Sample ID	QCID Code	Prep. Date (mm/dd/yyyy)	Prep. Time (Shiptime, military)	Analyst (initials) XXX	Analyte Code	Target Value	Target Units	Remarks/Source Material

1. Each control standard sampleID represents material in a bottle. When the material in a bottle is replenished, a new sampleID results.
2. pH control standard sampleIDs remain constant for one lake, unless small bottle refilled from one liter bottle before lake is finished.
3. Turbidity control standard sampleIDs remain constant for the duration of the commercial bottle.
4. Alkalinity control standard sampleIDs change when the one liter bottle is refilled.
5. Conductivity control standard sampleIDs change when the one liter bottle is refilled.

Calibration Data of Board Chemistry Instruments

Survey ID

LAKE (Circle Selection)

SUPERIOR	MICHIGAN	HURON	ERIE	ONTARIO
(SU)	(MI)	(HU)	(ER)	(ON)

Calibration of On Board analytical instruments should be performed at least once at the beginning of each Lake Survey

pH Meter	Buffer 4	Buffer 7	Buffer 10
	(SU)	(SU)	(SU)
pH	N/A	*	*
pH - Alkalinity	*	*	N/A

Turbidity Meter	Before Adjusting	After Adjusting
0 NTU		
20 NTU		

*Record Temperature at which standardization was performed

Date of Calibration (mm/dd/yyyy)	Time of Calibration (Shiptime, military)	Analyst (Initials, XXX)

Conductivity Stds.	Readings	Turbidity Stds.	NTU VALUE
106.1 umho/cm		Calibration 0	
210.3 umho/cm		Calibration 0.4	
313.5 umho/cm		Calibration 2.0	
415.8 umho/cm		Calibration 8.0	
		Calibration 20.0	

Notes:

1. Formazin Turbidity Standards should be prepared fresh daily.
2. This form is used for the sole purpose of documenting instrument calibrations only.
3. Calibration values of pH, Alkalinity & Turbidity meters should be updated w/ Stds. pH 7(pH), pH 4 (Alkalinity) & 20 NTU(Turbidity) at the beginning of each shift.

Calibration Data of Board Chemistry Instruments
Shiftwise Standardization

StationID	Date/Time (Shiptime)	Analyst	pH determination buffer 7	Temp. of Standardization	Alk determination buffer 4	Temp. of Standardization	Turbidity 20 NTU	Turbidity Empty Compartment
	(mm/dd/yyyy hh:mm)	(initials, XXX)	(reading before standardization)	(°C)	(reading before standardization)	(°C)	(before adjusting to 20)	before/after

Control Standards Data of Board Chemistry Parameters

Survey ID	Visit ID	Station ID

LAKE (Circle Selection)				
SUPERIOR (SU)	MICHIGAN (MI)	HURON (HU)	ERIE (ER)	ONTARIO (ON)

Warning Limits for Board Chemistry

SAMPLE ID	Parameter	Control Standard	Measured Value	Remarks	Control Standard	Warning Limits	*Control Limits
	pH - (Low)	6.86 (SU)			Low - pH 6.86	6.66 - 7.6	6.56 - 7.16
	pH - (High)	9.18 (SU)			High - pH 9.18	8.98 - 9.38	8.88 - 9.48
	Conductivity (Low)	196.5(umhos/cm)			Low Conductivity 196.5	194.5 - 198.5	193.5 - 199.5
	Conductivity (High)	293.3 (umhos/cm)			High Conductivity 293.3	291.3 - 295.3	290.3 - 296.3
	Alkalinity (Low)	40 (mg/L)			Low Alkalinity 40	38.6 - 41.4	38 - 42
	Alkalinity (High)	100 (mg/L)			High Alkalinity 100	98 - 102	97 - 103
	Turbidity (Low)	0.5 (NTU)			Low Turbidity 0.5	0.3 - 0.7	0.2 - 0.8
	Turbidity (High)	10 (NTU)			High Turbidity 10	8.6 - 11.4	8.0 - 12

Date of Control Check (mm/dd/yyyy)	Time of Control Check (Shiptime, military)	Analyst (initials)

Note: Control Standards should be analyzed at the onset, starting with the initial calibration of instruments for each lake survey and before the end of each 12-hour shift.

*Applicable instruments should be re-calibrated and samples re-analyzed, if any control standards measured are not within range of the Control Limits.

Board Chemistry Data

Survey ID	Visit ID	Station ID	Analytical Batch ID	Analytical Date (mm/dd/yyyy)	Analytical Time (Shiptime)	Analyst (Initials) XXX

Sample ID	Depth Code	pH (SU)	Specific Conductance (umhos/cm)	*Total Alkalinity (mg/L)	Turbidity (NTU)	Remarks

**Total Alkalinity Calculation:*

Volume of Titrant used (ml) X 10

NOTE: Refer to LG200 for depth code abbreviations and definitions.

Dissolved Oxygen Data (Winkler)

Survey ID	Visit ID	Station ID	Analytical Batch ID	Analytical Date (mm/dd/yyyy)	Analytical Time (Shiptime, military)	Analyst (initials, XXX)

Sample ID	Titrant Used D.O. (mL)	BOD Bottle Volume (mL)	Volume Corrected D.O. (mg/L)	Temperature (Celsius)	Barometric Pressure (mb)	Corrected Table Value (mg/L)	Remarks

Calculation of Volume Corrected D.O.

Titant Used (mL) x 60.8 (mL) / BOD Bottle Volume (mL)

Corrected Table Value

Value from Temperature table x barometric pressure/std pressure

At least one saturated sample is analyzed on each shift

Method Performance Criteria		
QC Type	Minimum Frequency	Acceptance Criteria
Lab Duplicate	Each Master Station	Absolute Difference < 0.2 mg/L
	DO Surveys: All SRF and B-1 samples	
Lab Accuracy Check, Saturated Sample	At the beginning of each lake of a regular survey	+/- 0.5 mg/L, compared to theoretical
	DO Surveys: At the beginning and once per shift	